

CLAIMS

1. A semiconductor integrated circuit comprising:
 - a plurality of analog/digital converting circuits (11) operated in parallel for sequentially converting an analog image signal to a digital image signal;
 - a multi-phase clock signal generating circuit (12) for generating multi-phase clock signals to be used for periodically operating said plurality of analog/digital converting circuits (11) in a certain order; and
 - a control circuit (20) for controlling said multi-phase clock signal generating circuit (12) to change at least one of a period and an order of operating said plurality of analog/digital converting circuits (11).
- 15 2. The semiconductor integrated circuit according to claim 1, wherein said control circuit (20) controls said multi-phase clock signal generating circuit (12) based on a number of pixels included in one frame of the digital image signal and a number of said plurality of analog/digital converting circuits such that said plurality of analog/digital converting circuits (11) never performs conversion in a same period and in a same order with respect to pixels for at least successive two frames.
- 25 3. The semiconductor integrated circuit according to claim 2, wherein said control circuit (20) controls said multi-phase clock signal generating circuit (12) based on the number of pixels included in one frame of the digital image signal and

the number of said plurality of analog/digital converting circuits such that said plurality of analog/digital converting circuits (11) never performs conversion in a same period and in a same order with respect to pixels for successive

5 N frames where the number of said plurality of analog/digital converting circuits is N.

4. The semiconductor integrated circuit according to claim 1, wherein said control circuit (20) controls said multi-phase clock signal generating circuit (12) based on an output of 10 a pseudorandom number generating circuit for generating at least N integers where the number of said plurality of analog/digital converting circuits is N so as to shift timing of sampling operation of said plurality of analog/digital converting circuits (11).

15 5. The semiconductor integrated circuit according to claim 1, wherein said multi-phase clock signal generating circuit (12) counts pulses of a master clock signal and stores counter values to be used for generating the multi-phase clock signals; and

20 said control circuit (20) controls said multi-phase clock signal generating circuit (12) by changing the counter values stored in said multi-phase clock signal generating circuit (12) at predetermined timing.

6. The semiconductor integrated circuit according to claim 25 1, wherein said multi-phase clock signal generating circuit (12) counts pulses of a master clock signal and stores counter values to be used for generating the multi-phase clock signals;

and

5 said control circuit (20) controls said multi-phase clock signal generating circuit (12) by changing the counter values stored in said multi-phase clock signal generating circuit (12) at predetermined timing based on a counter value obtained by counting the pulses of the master clock signal.

7. The semiconductor integrated circuit according to claim 1, wherein said control circuit (20) outputs a clock signal obtained by suppressing a predetermined number of pulses included in a master clock signal; and

10 said multi-phase clock signal generating circuit (12) generates said multi-phase clock signals based on counter values obtained by counting pulses of the clock signal outputted from said control circuit (20).

15 8. The semiconductor integrated circuit according to claim 7, wherein said control circuit (20) outputs the clock signal obtained by suppressing the predetermined number of pluses included in the master clock signal in a blanking period of the digital image signal.

20 9. A semiconductor integrated circuit comprising:
an analog/digital converting circuit (11) for converting an analog image signal to a digital image signal by sequentially switching between a plurality of circuit elements;

25 a first control circuit (31, 71) for controlling said analog/digital converting circuit (11) to periodically arrange said plurality of circuit elements in a certain order; and

a second control circuit (40, 80) for controlling said first control circuit (31, 71) to change at least one of a period and an order of arranging said plurality of circuit elements.

- 5 10. The semiconductor integrated circuit according to claim 9, wherein said second control circuit (40, 80) controls said first control circuit (31, 71) based on a number of pixels included in one frame of the digital image signal and a number of said plurality of circuit elements such that said
- 10 10. analog/digital converting circuit (11) never arranges said plurality of circuit elements in a same period and in a same order with respect to pixels for at least successive two frames.
11. The semiconductor integrated circuit according to claim 10, wherein said second control circuit (40, 80) controls said first control circuit (31, 71) based on the number of pixels included in one frame of the digital image signal and the number of said plurality of circuit elements such that said analog/digital converting circuit never arranges said plurality of circuit elements in the same period and in the same order with respect to pixels for successive N frames where a number of said circuit elements is N.
- 15 20. The semiconductor integrated circuit according to claim 9, wherein said first control circuit (31) counts a master clock signal and stores counter values to be used for generating multi-phase control signals for controlling said
- 25 analog/digital converting circuit (11); and
said second control circuit (40) controls said first

control circuit (31) by changing the counter values stored in said first control circuit at predetermined timing.

13. The semiconductor integrated circuit according to claim 9, wherein said first control circuit (31) counts a master 5 clock signal and stores counter values to be used for generating multi-phase control signals for controlling said analog/digital converting circuit (11); and

said second control circuit (40) controls said first control circuit (31) by changing the counter values stored 10 in said first control circuit at a predetermined interval based on a counter value obtained by counting a master clock signal.

14. The semiconductor integrated circuit according to claim 9, wherein said second control circuit (80) outputs a clock 15 signal obtained by suppressing a predetermined number of pulses included in a master clock signal; and

said first control circuit (71) generates multi-phase control signals for controlling said analog/digital converting circuit (11) based on counter values obtained by 20 counting the clock signal outputted from said second control circuit (80).

15. The semiconductor integrated circuit according to claim 14, wherein said second control circuit (80) outputs the clock signal obtained by suppressing the predetermined number of 25 pulses included in the master clock signal in a blanking period of the digital image signal.